

***ICT: Contribution to research and
learning environment of education
networks***

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Agenda

- What we know; to be true
- NRENs Infrastructure
 - ✓ Past
 - ✓ Present
 - ✓ Future
- Opportunities
- Conclusion

The Known

Some Critical ICT indicators for an Institution

- Network access and Networked Campus (ICT campus infrastructure)
 - Internet availability
 - Disaster recovery and security
 - Automation of registrar and financial student information systems
- Networked learning (and research)
 - Percent of courses on-line
 - Collaboration (internal & external)
 - Availability of local content on university websites
 - PhD and MS in ICT throughput of universities
- Institutional ICT strategy
 - Percent of ICT expenditure
 - Alignment of ICT strategy with institutional strategy

....ICTs is proxy for quality, excellence and sustainability

The Four Elements of the Knowledge Economy

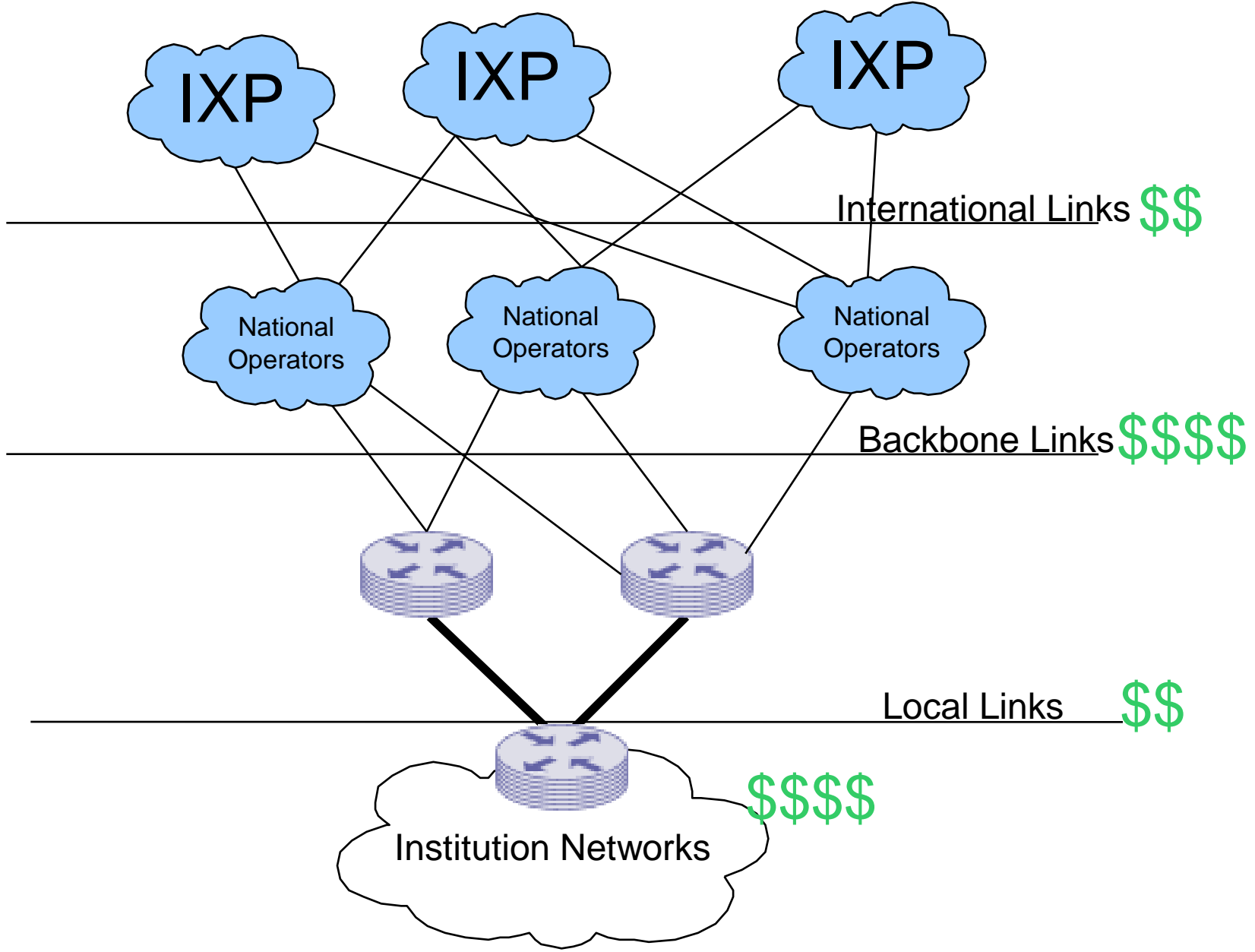
- An economic and institutional regime
 - provides incentives for the efficient use of the existing knowledge, the creation of new knowledge, and the flourishing of entrepreneurship
- An educated and skilled population
 - that can create, share and use knowledge well
- A dynamic information & communication infrastructure
 - that can facilitate the effective creation, communication, dissemination and processing of information
- An effective national innovation system
 - comprising a network of universities, research centres, think tanks, private enterprises and community groups, which can
 - create new knowledge and technologies and
 - tap into the growing stock of global knowledge, assimilate and adapt it to local needs

Connectivity Infrastructure -Institutions

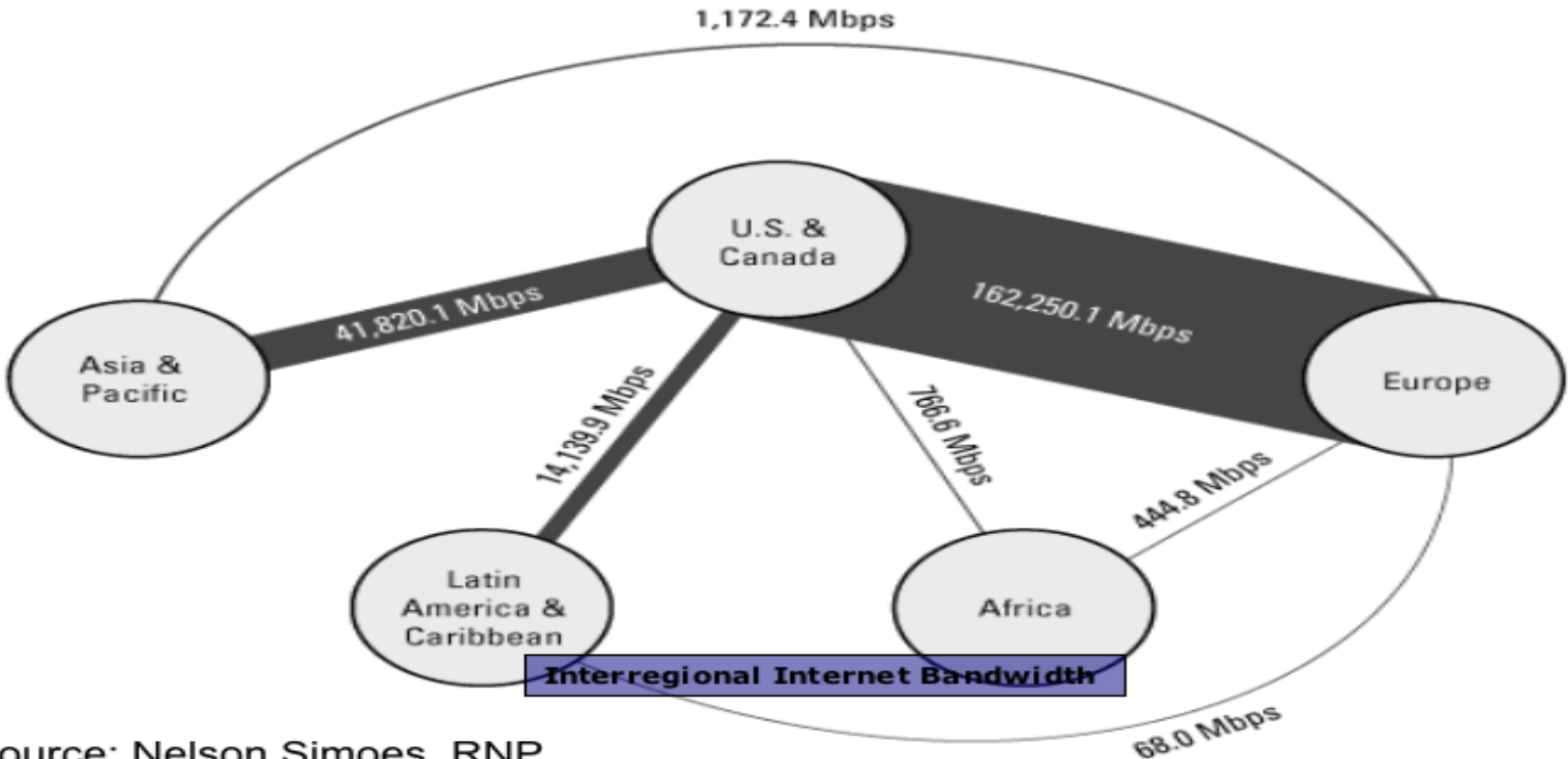
Thesis..

- Contribution of African Researchers to National Development is limited
- African Academics are isolated from:
 - Each other and the world – synergy is lost
 - Global Information Infrastructure – always a step behind the world
- “Improved and affordable regional and international connectivity will enable African researchers to generate a proportionate amount of intellectual property goods to achieve parity with the rest of the world”

The Connectivity Hierarchy



By all measures, low connectivity for Africa

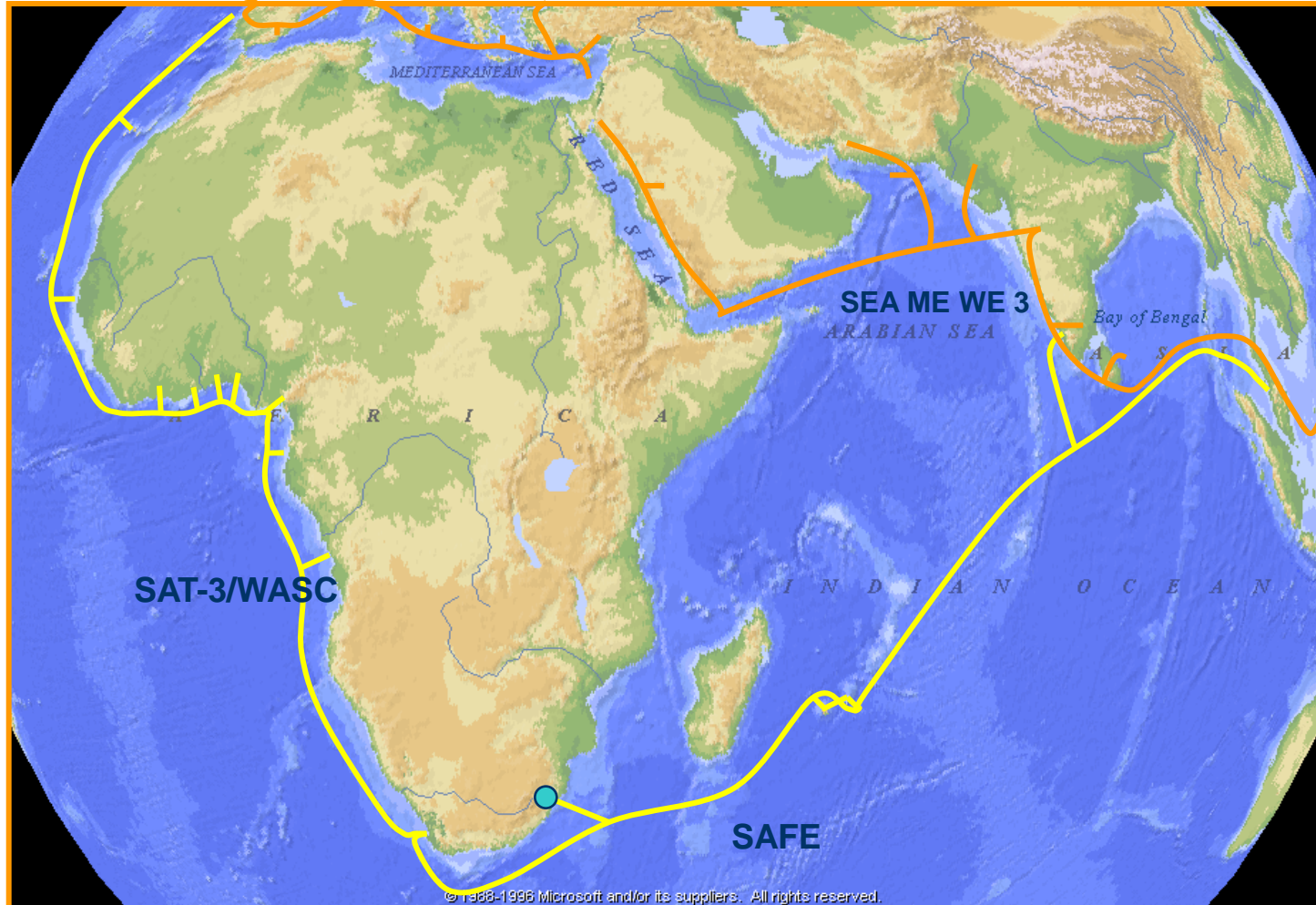


Source: Nelson Simoes, RNP

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Connectivity in Africa; before fibres

Fibre Coverage –2008



Connectivity divide

- International Connectivity is poor
 - Internet cost is very high
 - Significant barriers to access to information and resources, collaboration, research, funding opportunities
- Dedicated NRENs are few
- Human infrastructure is not being developed at rate needed
- Is the gap widening?

Challenges

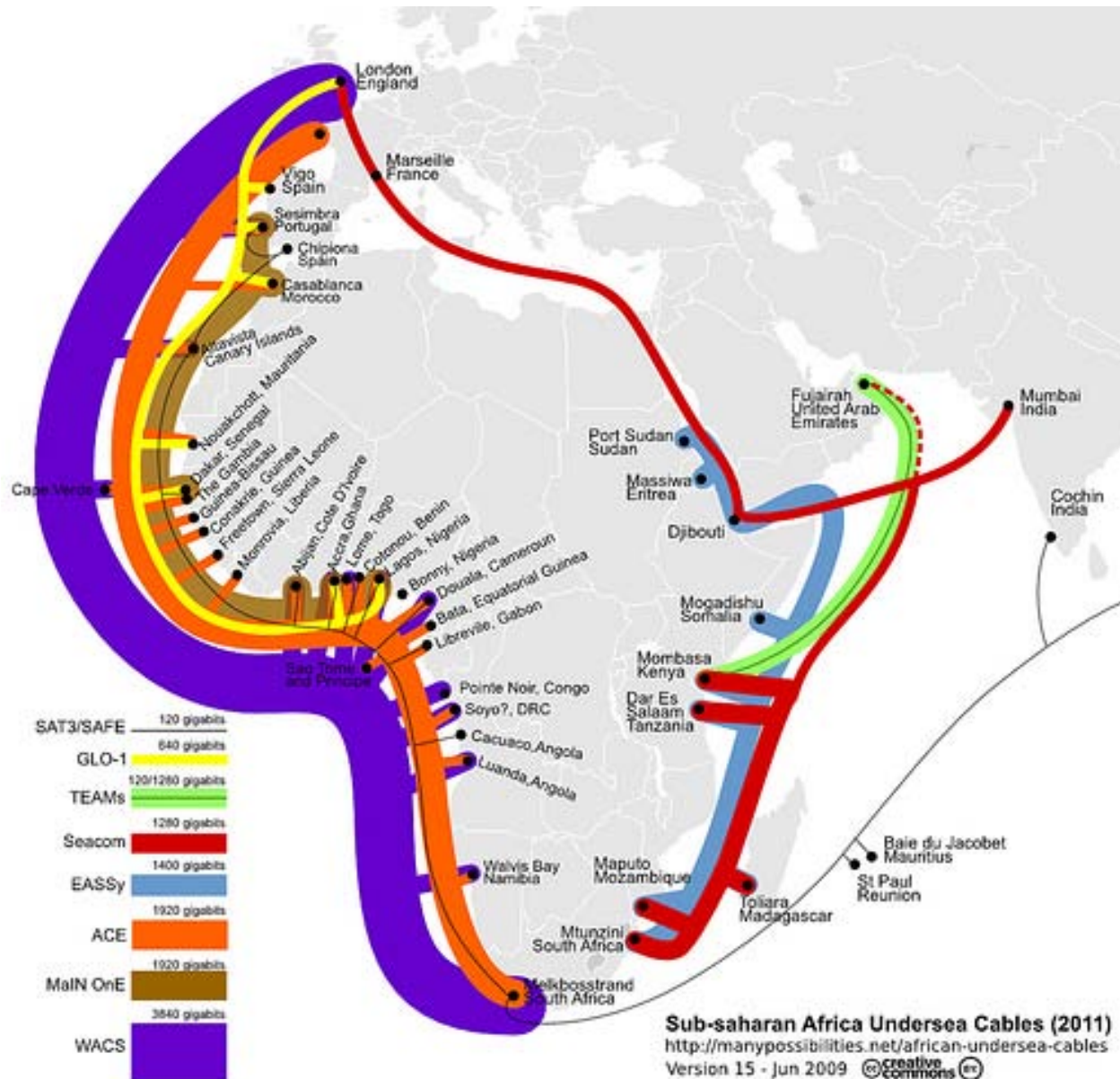
- Extending High Bandwidth Performance Connectivity to the African Research and Education Community
- Developing research and education networks (RENs) for research, teaching and learning in developing countries
 - _ How do we foster the development of research and education networks in developing countries?
 - _ What resources are needed?
 - _ How can the global Internet and academic community help?
 - _ What are some of the case studies in countries that have already developed such NREN infrastructure?

Challenges....

- What's the real target? What are the important strategic issues?
 - Is it just about the Internet?
 - Are universities just consumers/customers?
 - Or are universities the cornerstone of “knowledge society” and “globalization”? Of both the human infrastructure and economic development via new technology development and transfer?
 - Are we aiming for the future?

Opportunities

Connectivity in Africa; current state



NREN Status Summary

Formal REN, fairly advanced network and sufficient bandwidth: **South Africa, Egypt**



Formal REN with operational network: **Kenya, Sudan, Senegal, Malawi, Uganda, Namibia**









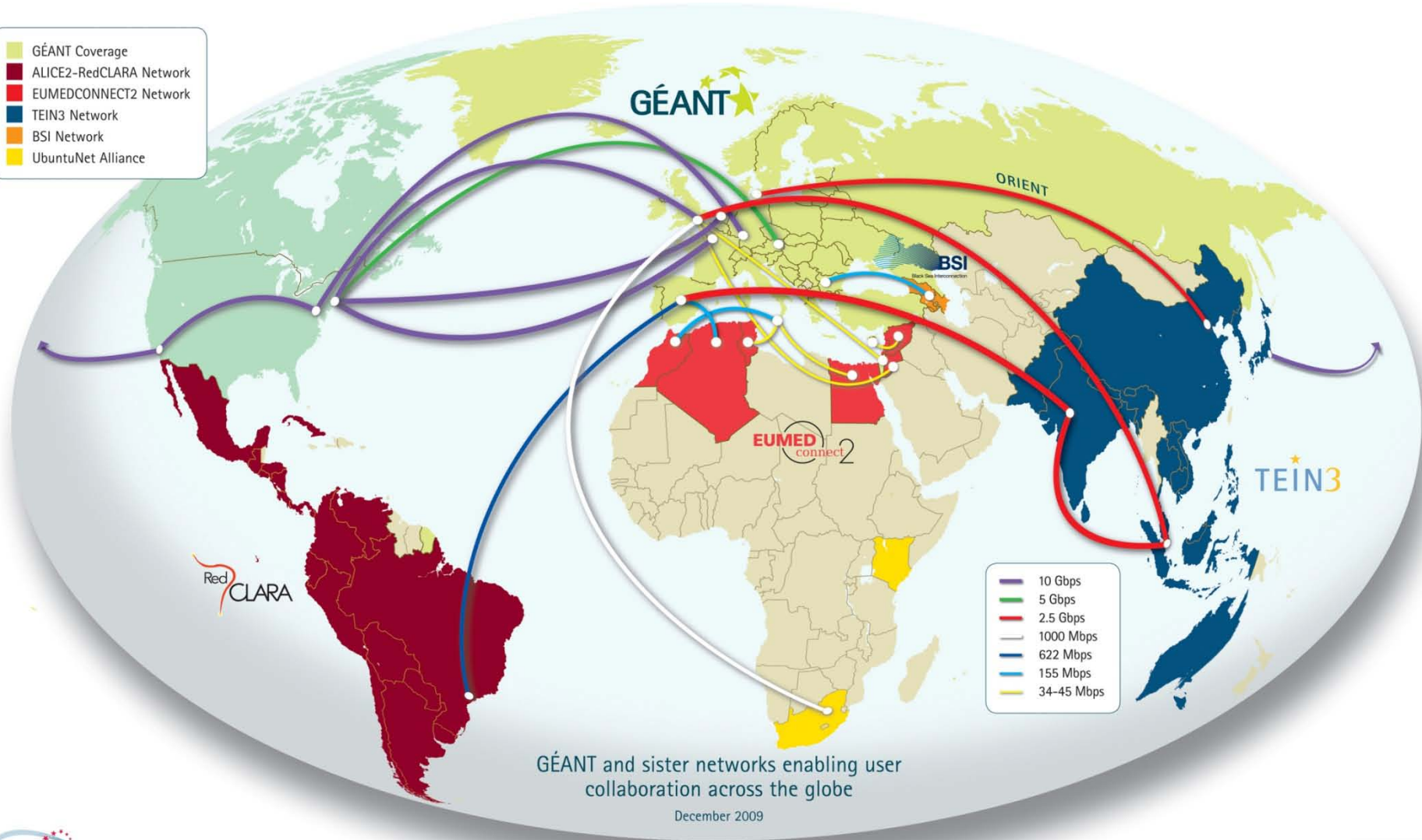
Formal REN but not operational: **Ghana, Nigeria, Rwanda, Tanzania, Zambia, DRC, Mozambique, Ethiopia, Somalia**



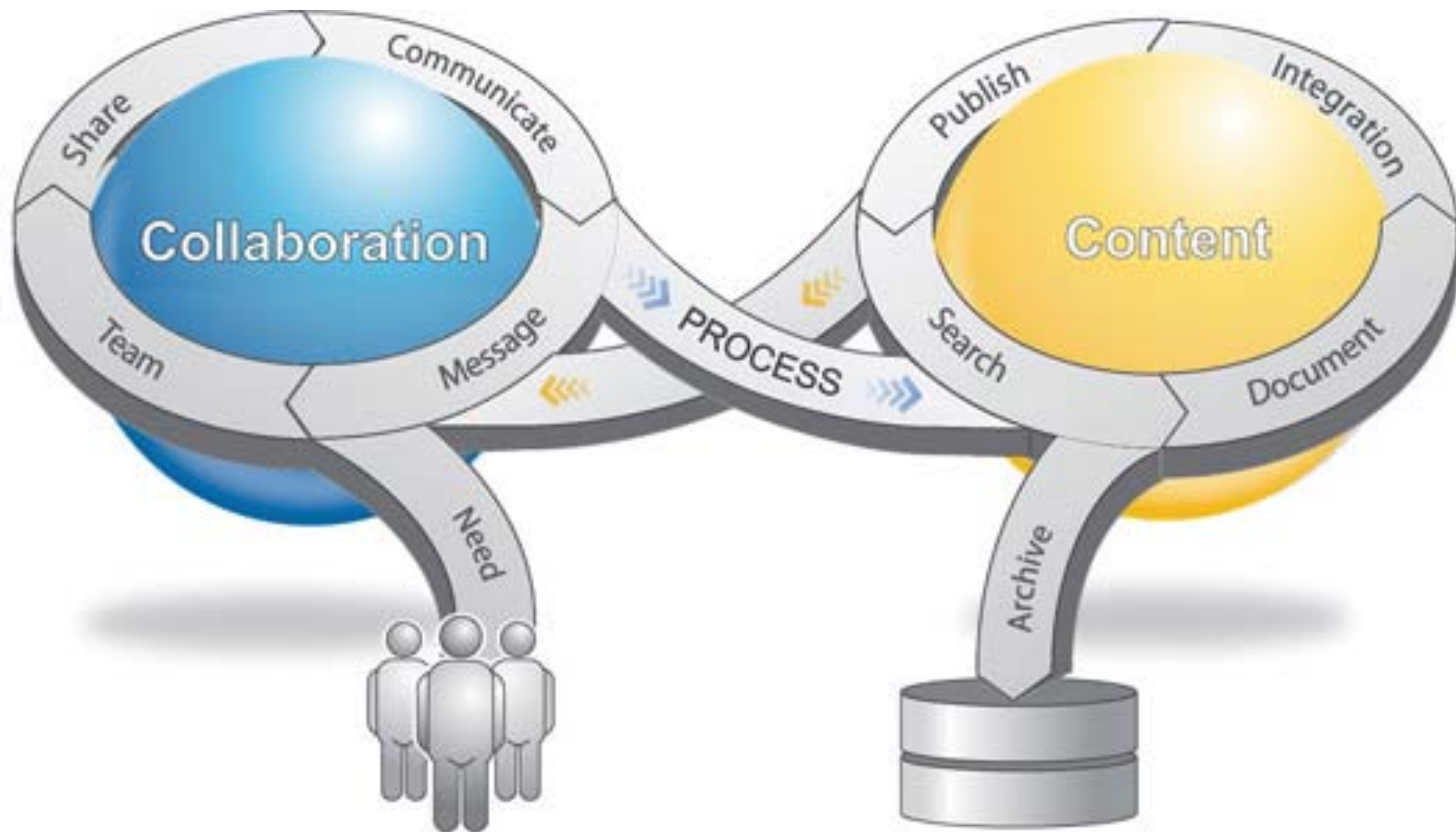
REN in formation: **Botswana, Swaziland, Lesotho, Burundi, Angola, Mauritius, Djibouti, Zimbabwe**

GÉANT At the Heart of Global Research Networking

-  GÉANT Coverage
-  ALICE2-RedCLARA Network
-  EUMEDCONNECT2 Network
-  TEIN3 Network
-  BSI Network
-  UbuntuNet Alliance



Connectivity Motivation...



- In the quest for empowering learners/researchers independence, a people comfortable with ICTs develop an information culture that generates critical thinking and awareness about knowledge production

Competitiveness and Higher Education/Research Platforms

- Research environment requires;
 - remote collaboration support
 - a wider and wider range of connected locations
 - Support of disparate research groups and cross traditional departmental and institutional boundaries (interdisciplinary)
- Collaboration resources and environments include;
 - [Video Conferencing](#)
 - [Audio & Web Conferencing](#)
 - [AccessGrid](#)
 - [Project Management](#)
 - [Document Management](#)
 - [Web Hosting](#)
 - [Publishing](#)
 - Social Networks

Conclusion

Innovation, Collaboration, Innovation

- In short, we have both great opportunities, and the creativity to overcome the challenges we face, we have goodwill and support, and we look to the future with excitement because in this future, collaboration is the only option.

Thank You!